Nisbah Bobot Zeolit dan Arang Sekam Padi Sebagai Adsorben dalam Pengolahan Limbah Cair Laboratorium Kimia

Weight Ratio Of Zeolite and Rice Husk Charcoal As Adsorbant in the Chemical Laboratory's Wastewater Treatment

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Abstract

The purpose of this study is to determine the effectiveness of weight ratio of zeolite and rice husk charcoal in lowering the physico-chemical parameters of liquid waste chemical laboratory and determine the adsorption isotherm models weight ratio of zeolite and rice husk charcoal. Data were analyzed using Randomized Completely Block Design (RCBD), 5 treatments and 5 replications. As a block is the time analysis. As the treatment is different variations of the weight ratio of zeolite and rice husk (grams/gram), namely (5:5); (6:4); (7:3); (8 2) and (9:1). The treatment of its adsorbent were given separately and both of it is treated with stirring. To test the difference between treatment means, the Honestly Significant Differences (HSD) were used with 5% level of significance.

The results showed that the effectivenessof giving 8 grams zeolite for 240 minutes is 99.20% (COD); 68.78% (Cu) and 94.53%(Pb), respectively. While the effectiveness of giving 2 grams rice husk charcoal in the next 180 minutes are 42.34% (COD); 70.75% (Cu) dan 84.30% (Pb), respectively. The maximum adsorption capacity of giving 8 grams zeolite within 240 minutes is COD = 166.670 mg/g (followed Freundlich isotherm model); Cu = 0.327 mg/g (followed Freundlich isotherm model); Pb = 0.754 mg/g (followed Langmuir isotherm model), respectively. While the absorption capacity of giving 2 grams rice husk charcoal in the next 180 minutes are : COD = $3.490x10^5$mg/g (followed Freundlich isotherm model); Cu = 0.084 mg/g (followed Freundlich isotherm model); Pb = 0.782 mg/g (followed Langmuir isotherm model), respectively.

Keywords: zeolite , rice husk charcoal,adsorbant, adsorption isotherms, waste water